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10/007,766	11/08/2001	Brad R. Lewis	30014200-1002	3626

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EXAMINER

NAHAR, QAMRUN

ART UNIT	PAPER NUMBER
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2191

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/007,766

Applicant(s)

LEWIS ET AL.

Examiner

Qamrun Nahar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-26 have been examined.

#### ***Drawings***

2. The drawings are objected to because there is no Figure 15. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Specification***

3. The disclosure is objected to because of the following informalities: “February 4, 2001” on pg. 1, line 3 of par. 2 and line 4 of par. 3 should be “February 4, 1999”.

Appropriate correction is required.

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4. The disclosure is objected to because of the following informalities: under “Brief Description of the Drawings”, there is no description for Figures 15A and 15B.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 6, 14 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claims 6 and 17 recite the limitation "**the** nodes" in line 1 of the claims. There is insufficient antecedent basis for this limitation in the claims. Therefore, this limitation is interpreted as “nodes are assigned to the blocks”.

8. Claim 14 recites the limitation "the dependency arc" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim. Therefore, this limitation is interpreted as “a dependency arc representing the determined dependency”.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-4, 6-15 and 17-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Calder (U.S. 5,963,972).

**Per Claim 1:**

The Calder patent discloses:

- **dividing the memory into blocks** (column 4, lines 29-40)
- **assigning at least a portion of the data and at least one code segment to each block** (column 3, lines 56-62; Table 1 in column 4, lines 8-17; and see Figure 4 for the mapping of the data and code segment to the cache memory)
- **determining whether dependencies exist among the blocks such that a first block depends on data assigned to a second block; and displaying a graph comprising the blocks and the determined dependencies** (column 3, lines 56-66; column 7, lines 6-56; column 8, lines 10-54; and column 12, lines 25-37).

**Per Claim 2:**

The Calder patent discloses:

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- wherein the step of displaying comprises the step of displaying a graph comprising nodes assigned to the blocks and dependency arcs representing the determined dependencies (column 3, lines 56-66; column 7, lines 6-56; column 8, lines 10-54; and column 12, lines 25-37).

**Per Claim 3:**

The Calder patent discloses:

- wherein the step of displaying further comprises the step of presenting the dependency arcs using a satisfied dependency visualization when the determined dependency is satisfied, and presenting the dependency arcs using an unsatisfied dependency visualization when the determined dependency is unsatisfied (column 5, lines 36-41).

**Per Claim 4:**

The Calder patent discloses:

- further comprising the steps of: receiving a node selection specifying a selected one of the nodes; determining unmet dependencies for the selected node; and displaying in a visually distinctive manner the unmet dependencies in the graph (column 5, lines 36-49).

**Per Claim 6 (as best understood):**

The Calder patent discloses:

- wherein nodes are assigned to the blocks include executed nodes and unexecuted nodes, and wherein the step of displaying further comprises the step of displaying the unexecuted nodes using an unexecuted visualization and the executed nodes using an executed visualization (column 5, lines 36-49).

**Per Claim 7:**

The Calder patent discloses:

- wherein the data includes a data structure, and wherein the step of displaying further comprises the step of: facilitating visualization of at least a portion of the data structure accessed by at least one of the code segments by graphically presenting at least a portion of the data structure and accentuating the portion of the data structure accessed by the at least one code segment (column 5, lines 36-49).

**Per Claim 8:**

The Calder patent discloses:

- representing the data flow program as a graph comprising nodes and node dependencies between the nodes; and displaying the graph to facilitate visualization

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**of the data flow program** (column 3, lines 56-66; column 7, lines 6-56; column 8, lines 10-54; and column 12, lines 25-37).

**Per Claim 9:**

The Calder patent discloses:

- wherein the nodes include executed nodes and unexecuted nodes, and wherein the step of displaying comprises the step of displaying the unexecuted nodes with an unexecuted visualization and displaying the executed nodes with an executed visualization (column 5, lines 36-49).

**Per Claim 10:**

The Calder patent discloses:

- wherein the nodes include executing nodes, and wherein the step of displaying comprises the step of displaying the executing nodes with an executing visualization (column 5, lines 36-49).

**Per Claim 11:**

The Calder patent discloses:

- wherein the node dependencies include satisfied dependencies and unsatisfied dependencies, and wherein the step of displaying comprises the steps of displaying



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**the unsatisfied dependencies using an unsatisfied dependency visualization, and displaying the satisfied dependencies using a satisfied dependency visualization** (column 5, lines 36-41).

**Per Claims 12-13, 14 (as best understood), 15, 17 (as best understood) & 18:**

These are computer-readable medium versions of the claimed method discussed above (claims 1-4 and 6-7, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also anticipated by Calder.

**Per Claim 19:**

This is another version of the claimed method discussed above (claims 1 and 6), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above, including “storing data read and data write identifiers for each code segment, the data read and data write identifiers identifying at least a portion of the data read or written by the code segment” (column 4, lines 29-34) and “initiating execution of the code segments” (column 5, lines 36-49). Thus, accordingly, this claim is also anticipated by Calder.

**Per Claim 20:**

This is a data processing system version of the claimed method discussed above (claims 1 and 2), wherein all claim limitations also have been addressed and/or covered

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in cited areas as set forth above. Thus, accordingly, this claim is also anticipated by Calder.

**Per Claims 21-22:**

These are data processing system versions of the claimed method discussed above (claims 6 and 3, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also anticipated by Calder.

**Per Claim 23:**

This is a data processing system version of the claimed method discussed above (claims 1 and 2), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above, including “means for apportioning a memory into regions and associating the data and the code segments with the regions” (column 3, lines 56-62; Table 1 in column 4, lines 8-17; and see Figure 4 for the mapping of the data and code segment to the cache memory). Thus, accordingly, this claim is also anticipated by Calder.

**Per Claim 24:**

This is a computer readable memory device version of the claimed method discussed above, claim 1, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also anticipated by Calder.

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**Per Claim 25:**

The Calder patent discloses:

**- wherein the data structure further comprises: a processed flag that indicates whether at least one of the nodes is executed or unexecuted (column 5, lines 36-49).**

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 5, 16 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calder (U.S. 5,963,972) in view of Cai (U.S. 6,349,363).

**Per Claim 5:**

The rejection of claim 2 is incorporated, and further, Calder does not explicitly teach providing for execution of the code segments using threads; receiving a thread selection specifying at least one of the threads; and displaying nodes executed by the at least one thread. Cai teaches providing for execution of the code segments using threads; receiving a thread selection specifying at least one of the threads; and displaying nodes executed by the at least one thread (column 7, lines 30-40).

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It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Calder to include the step of providing for execution of the code segments using threads; receiving a thread selection specifying at least one of the threads; and displaying nodes executed by the at least one thread using the teaching of Cai. The modification would be obvious because one of ordinary skill in the art would be motivated to provide improved memory performances (Cai, column 1, lines 61-67 to column 2, lines 1-2).

**Per Claim 16:**

This is a computer-readable medium version of the claimed method discussed above, claim 5, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also obvious.

**Per Claim 26:**

This is a computer readable memory device version of the claimed method discussed above, claim 5, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also obvious.

***Conclusion***

13. Any inquiry concerning this communication from the examiner should be directed to Qamrun Nahar whose telephone number is (571) 272-3730. The examiner can normally be reached on Mondays through Thursdays from 8:30 AM to 6:00 PM. The examiner can also be reached on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki, can be reached on (571) 272-3719. The fax phone number for the organization where this application or processing is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



QN  
March 16, 2005

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**SUPERVISORY PATENT EXAMINER**  
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